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ABSTRACT

This booklet is designed to serve as a practical guide to assist teachers in using the Illinois Core Curriculum in Agriculture to develop courses of study for local vocational agriculture courses. Provided first is an overview of vocational agriculture programs on the secondary-school level in the state of Illinois. The next section is a guide for using the rural- and metropolitan-area Illinois core curriculum planning kits for vocational agriculture courses. Addressed in the individual sections of the guide are basic steps in developing a course of study, initial development of courses of study using the course planning kit, and revision of courses of study. Appendixes to the booklet contain a list of the rural and metropolitan core units and problem areas as well as a list of other suggested units and problem areas for rural and metropolitan programs. (MN)

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Using the Illinois Core Curriculum for Developing Courses of Study in Vocational Agriculture

Illinois State Board of Education

Adult, Vocational, and Technical Education

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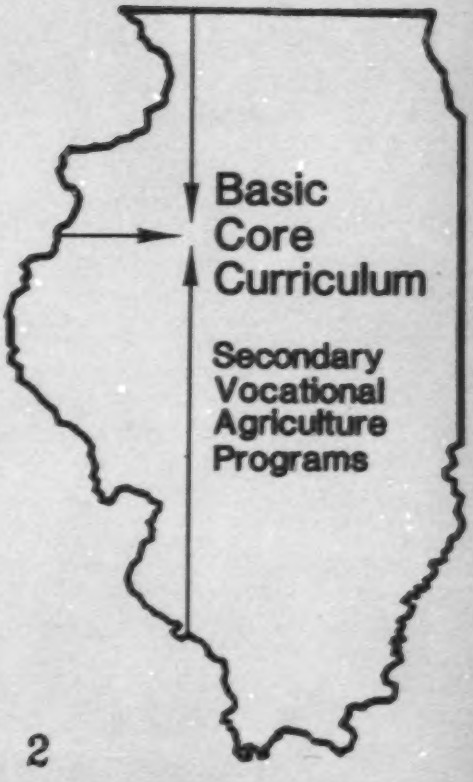

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USING THE ILLINOIS CORE CURRICULUM FOR DEVELOPING COURSES OF STUDY IN VOCATIONAL AGRICULTURE

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PREFACE

Vocational agriculture programs in Illinois must undergo frequent revision and renewal in order to keep pace with the everchanging science and technology of agriculture. Designing a curriculum that is responsive to student occupational needs and interests in the areas of agricultural production, horticulture, agricultural mechanics, agribusiness, or agricultural resources and forestry is a critical challenge for teachers of vocational agriculture. Whether directing rural or metropolitan programs, all teachers must follow the same general principles in planning courses of study.

The purpose of this reference is to provide a simple and efficient aid to assist teachers in developing a course of study for each vocational agriculture course offered. The procedures suggested in this booklet are intended to be used in conjunction with the accompanying printed strips listing the titles of all problem areas contained in the four year Illinois core curricula for rural and metropolitan vocational agriculture programs. Use of this reference should allow yearly course of study revisions to be made quickly and easily, with greater utilization of the problem areas contained in the core curriculum. This booklet is intended to serve as a very practical reference for teachers to use in developing courses of study for their local programs so that they may better keep pace with the science and technology of agriculture.

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OVERVIEW OF VOCATIONAL AGRICULTURE

Vocational agriculture prepares students for a wide variety of careers in the broad field of agriculture. Emphasis is focused upon placement for employment and the development of leadership and entrepreneurial skills. Vocational agriculture in Illinois at the secondary level includes basic preparation for occupations in livestock and crop production, processing and marketing of farm products, agricultural sales and service, horticulture, natural resources, and agricultural mechanics.

The vocational agriculture curriculum is based upon the belief that certain knowledge, abilities, and attitudes are necessary in any agricultural endeavor and that these prerequisites for success may best be obtained through systematic instruction. The secondary vocational agriculture program in Illinois is based upon a four year sequential program. The first two years are aimed at providing the basic background in the science and mechanics of agriculture. Students then select specialized programs in agricultural production, horticulture, agribusiness, agricultural mechanics, or other areas. The experiences acquired by students during their junior and senior years provide the specialized training needed to pursue a career in their chosen occupational area. Excellence in providing classroom and laboratory instruction is a major key to ensuring the quality of vocational agriculture programs. This instructional component is also directly linked to two other essential elements of vocational agriculture, the FFA and SOE.

Throughout the vocational agriculture program, the development of leadership abilities and positive work values and attitudes is stressed. The primary vehicle for developing leadership skills is the FFA, the national organization for vocational agriculture students. The FFA is an integral component of all vocational agriculture programs. Through a variety of programs and activities, students have many opportunities to practice and refine their leadership abilities. In addition, the FFA provides incentive for achievement by offering a large number of award programs designed to recognize individual and chapter accomplishments.

Another essential element of all vocational agriculture programs is the supervised occupational experience program, or SOE. Students' SOE's may involve placement in agribusiness or farming, ownership programs, directed school laboratory experience, improvement projects or other experience programs. The SOE provides the direct link between classroom and lab instruction and actual experience in an occupational area chosen by the student. By providing this practical application, SOE's are the ingredient that give vocational agriculture programs their vocational flavor. SOE's are tailored to meet the individual needs and interests of students enrolled in vocational agriculture. SOE's can provide students with the experience and skills necessary for successful employment in agriculture or ownership and management of an agribusiness venture.

Systematic and sequential instruction in vocational agriculture requires thoughtful planning and skill in course organization Classroom and laboratory instruction, the FFA, and the SOE should be reflected in the vocational agriculture courses of study, recognizing that each relies upon and is directly related to the other.

USING THE COURSE PLANNING KIT

Introduction

The project to develop the Illinois Core Curriculum in Agriculture represented a long term effort that concluded in 1984. As a result, a four year core curriculum for both rural and metropolitan vocational agriculture programs was written and distributed to secondary teachers in Illinois. The Rural Core Curriculum contains 91 problem areas of instruction, while the Metropolitan Core Curriculum contains 108. The purpose of the core curricula was not to provide a prescribed course of study for each vocational agriculture course and program. Instead, the units and problem areas contained in each core curriculum are designed in theory to represent approximately 60 percent of the instructional topics included in the course of study for any given year. The content of the remaining 40 percent of the instructional program should be based upon local program and student needs, characteristics and interests. Thus, the Illinois Core Curriculum should serve as a major reference in course planning, but the local teacher must identify additional areas of study and develop a sequential and well-organized course of study as a result. This course planning kit should make this critical task much easier with more satisfying results, while ensuring appropriate and sufficient use of the core curriculum.

Basic Steps in Developing a Course of Study

A course of study contains a list of the instructional units and problem areas, the number of teaching days allotted to each, and designation of the time of year each problem area is to be taught. Every course offered in a vocational

agriculture program should have its own course of study. Certain key principles should always be considered during course planning activities, whether directed toward rural or metropolitan programs. The following steps should be helpful when developing courses of study:

1. Study the nature and importance of agriculture in the school community. Local data should be coupled with area, state, and national data to provide a complete picture of the total agricultural industry. Local surveys should determine the agricultural needs and interests of those served by the school.

2. Study the school. Gather data regarding enrollment figures, student characteristics, facilities and equipment, length of periods, and past instructional and related activities of the vocational agriculture program.

3. Determine the courses to be offered. The specific courses that comprise a particular program should reflect the nature, needs, and interests of students, the school, and the community. General objectives and areas of instruction should be specified for each course. Sequential courses should represent a program of instruction that enables the student to explore and become oriented to all areas of agriculture, as well as pursue specific areas of interest for occupational preparation.

4. Identify the units and problem areas to be taught in each course. Organization of course content into units and problem areas provides the structure necessary for efficient and effective planning and teaching. A unit may be defined as a grouping of specific areas of study, or problem areas, which have common elements. A problem area refers to a specific area of study within a unit. (See Appendices

A-C for examples of units and problem areas.) In turn, each problem area contains a variety of problems/questior to be discussed and solved. The units and problem areas selected should reflect the objectives of the specific course, as well as the vocational agriculture program in general. That is, instruction should show more breadth during the first two years and more depth during the junior and senior years. The course of study for every course in a vocational agriculture program should include problem areas pertaining to the FFA/leadership and SOE elements of the total program. The problem areas contained in a course of study should be based in part upon the enterprises and activities of the supervised occupational experience programs of the students.

Generally speaking, units should represent no more than three to four weeks of instruction, and problem areas should require two to ten days of teaching time. These guidelines will prevent students from becoming tired of an area of instruction before it is completed, and allow each unit and problem area to be finished without interruption.

Approximately 160 days of instruction should be scheduled with specific units and problem areas. The remaining days of the school year should be left open to allow for special events, reviews, testing, and other activities that are not a part of planned instructional time. Problem areas should be aligned with a specific course on the basis of difficulty of the subject matter, opportunity for student application, student readiness, and need for prerequisite learning.

An estimate of the number of days needed to teach each problem area should be made. This estimate will depend upon the objectives to be accomplished, special activities planned, laboratory and classroom time required, facilities available, student ability, instructional approaches and materials used, and previous student experience.

5. Arrange the units and problem areas in teaching order for each course. Several factors affect the order in which problem areas must be taught. Instruction should immediately precede, as much as possible, the opportunity for student application of the principles and practices learned. Seasonal factors have a tremendous influence upon the production and marketing of farm and horticultural products. Other areas of agriculture are also seasonal in nature. The availability of indoor and outdoor facilities also affects the scheduling of problem areas. Other factors include the school calendar and special events, such as FFA contests, starting new record books, and special tours or field days. The arrangement of problem areas within the course of study should provide continuity as well as variety in the sequence and nature of teaching and learning.

A well-planned course of study is based upon the clientele served and provides specific structure for planning and carrying out instruction throughout the school year. At the same time, the course of study should be used as a flexible guide for determining the topics of study as the year progresses. A course of study should include the course title and description, a list of units and problem areas to be taught, an estimate of the number of days needed for each unit and problem area, and the arrangement of units and problem areas in the order to be taught with the month specified.

The content of any course of study should directly reflect the school and community situation. Advisory council input into the development, implementation, evaluation, and revision of the course of study is essential.

Initial Development of Courses of Study Using the Course Planning Kit

In addition to the reference information contained in this booklet, the Course Planning Kit includes the printed titles of all problem areas for Core I-IV for either the Rural or Metropolitan Core. Blank strips for writing titles of other problem areas are also included in the kit.

After studying the school and community and determining the courses to be taught, teachers should select from the Illinois Core Curriculum (I-IV) those problem areas that they want to include in their local instructional programs. Either the Rural or Metropolitan Core, depending upon the nature of the vocational agriculture program, should provide the basis for this beginning selection of problem areas. Problem areas selected from the Illinois Core Curriculum may comprise 60 percent or more of the curriculum for any single course. The remaining 40 percent of the problem areas should represent instructional topics unique to the school community and important to the vitality of agriculture in the local situation. The following steps may be used to allocate the content to various courses in the vocational agriculture program:

1. On a large table or bulletin board display the printed titles by unit and problem area for each year of the Core Curriculum. Problem areas for each unit are color coded to distinguish the various units. If courses at your school are offered on a semester basis, group the units and problem areas from the

appropriate year of the Core into the respective semesters.

2. Identify additional units and problem areas that should be a part of your instructional program which are not included in the Core. Write the titles of these additional problem areas on the blank strips provided in the Course Planning Kit. See Appendix C for a list of other possible units and problem areas. The Rural Core may also be used as a source of other units and problem areas in a metropolitan program and vice versa. Existing courses of study for your program can provide major input.

3. Incorporate the additional units and problem areas into the display of preprinted titles by year/course.

4. Determine the units and/or problem areas in each course that should be taught. At this point units and problem areas may be eliminated on a definite or tentative basis. The final decision to eliminate some units and problem areas may be based upon the amount of instructional time available. Keep the local situation in mind throughout this selection process.

5. Arrange the units and problem areas in the order to be taught for each course.

6. Estimate the number of days needed to teach each problem area and pencil in on the title strip. Total the number of days required to teach all units and problem areas under consideration at this time. Remember, only about 160 days should be planned for specific instructional topics in a year-long course.

7. If the total number of days required to teach all selected units and problem areas exceeds 160, reexamine the list to identify other units and problem areas that should be eliminated to bring the total number of days to 160. Other units and problem areas may be added if the total is less than 160. In addition, the number of days allotted to each problem area may be adjusted.

8. Rearrange the final order of units and problem areas, if needed.

9. Repeat these steps for each course offered as a part of the vocational agriculture program. Follow the key principles and steps to developing a course of study discussed earlier in this booklet.

10. Type the course of study for each course offered and distribute to current and prospective students, guidance counselors, administrators, advisory council members, and other key groups.

Revising Courses of Study

Due to a large number of attributing factors, courses of study need to be revised on a regular basis. As the knowledge and procedures in agriculture, the local community, and the school population change, so must the nature and substance of instruction in vocational agriculture.

Revisions in courses of study may be required on an intermediate, as well as yearly basis. The course of study is a flexible plan of action, and as such, must be consulted frequently throughout the school year. Doing so will help keep the teaching calendar on schedule, result in better

planning, and allow for modifications as needed. Throughout the year notes should be made about the success, effectiveness, and outcomes of problem areas.

At the end of the year, each course of study should be reviewed and modified for the coming year. Modifications should be based upon input from the teacher, students, advisory council, and others. Possible changes may pertain to course description or sequence, specific problem areas addressed, number of days allotted, and order of teaching instructional areas. Revision efforts may begin with any of the five basic steps in developing a course of study, but should periodically begin by addressing the first step.

Summary

Systematic instructional planning can provide the framework needed for implementing high quality vocational agriculture programs. The suggestions outlined in this booklet encourage teachers to consider student, school, and community factors when developing courses of study for their local programs. The Illinois Core Curriculum for Agriculture represents a tremendous course planning resource for teachers. Regular update and revision of courses of study are both necessary and feasible using the Illinois Core Curriculum and procedures outlined in this booklet. Keeping programs responsive to the needs of students and the agricultural industry will ensure the vitality and success of vocational agriculture in the years ahead.

APPENDIX A

RURAL CORE UNITS AND PROBLEM AREAS

Unit A: Orientation to Agricultural Occupations

Problem Areas:

1. Introduction to School, the Agriculture Program and FFA
2. Introduction to Agriculture and Society
3. Identifying Careers in Agriculture
4. Orientation to the Agriculture Course and SOEP
5. Developing Effective Study Habits
6. Exploring Agricultural Occupations and Careers
7. Exploring Educational Opportunities Beyond High School
8. Developing Employment Skills

Unit B: Leadership and Citizenship

Problem Areas:

1. Understanding and Participating in FFA
2. Duties and Responsibilities of FFA Members
3. Developing Basic Parliamentary Procedure Skills
4. Developing Basic Public Speaking Skills
5. Participating in Individual and Group Activities in the FFA
6. Developing Leadership Skills
7. Planning and Conducting Community Service Programs
8. Becoming Acquainted with Rural Agricultural Organizations
9. Utilizing Local, State and Federal Agricultural Agencies and Resources

Unit C: Supervised Occupational Experience

Problem Areas:

1. Orientation to SOE
2. Planning My SOE Program
3. Starting and Keeping SOEP Records

4. Summarizing and Analyzing Records
5. Estimating Income and Expenses for Crop and Livestock Projects
6. Expanding my SOEP
7. Developing SOE Programs for Non-traditional Students
8. Evaluating SOE Programs and Setting Future Directions

Unit D: Livestock Science

Problem Areas:

1. Understanding the Livestock Industry
2. Identifying Breeds of Livestock and Poultry
3. Selecting Livestock
4. Feeding Livestock
5. Advanced Feeding and Caring for Livestock
6. Providing Housing and Equipment for Livestock
7. Judging and Evaluating Meat and Livestock Products
8. Maintaining Livestock Health
9. Planning and Evaluating Livestock Confinement Systems
10. Developing Livestock Management Skills
11. Understanding and Using Artificial Insemination
12. Understanding Basic Genetics and Reproduction

Unit E: Crop Science

Problem Areas:

1. Identifying Crop and Weed Seeds
2. Judging Quality of Grain for Seed and for Market
3. Growing Corn
4. Growing Soybeans
5. Growing Small Grains
6. Harvesting Farm Crops
7. Handling Pesticides Safely and Passing Certification Tests

8. Maintaining and Improving Forage Crops and Pastures
9. Drying and Storing Grain
10. Growing Timber and Trees as an Agricultural Crop
11. Harvesting Forage Crops

Unit F: Soil Science and Conservation of Natural Resources

Problem Areas:

1. Collecting Soil Samples
2. Applying Soil Sample Test Results
3. Understanding Soils
4. Judging Land-Use Capability
5. Buying and Using Fertilizers
6. Conserving Soil and Water Resources
7. Conserving Wildlife Resources
8. Utilizing Energy Effectively

Unit G: Horticulture

Problem Areas:

1. Growing Vegetables
2. Beautifying the Homestead
3. Identifying Trees, Shrubs and Flowers
4. Propagating Plants Sexually and Asexually
5. Caring for Indoor Plants
6. Growing Small Fruits
7. Growing Tree Fruits
8. Establishing and Maintaining Turf

Unit H: Agricultural Mechanics

Problem Areas:

1. Identifying, Fitting and Using Hand Tools
2. Using Selected Power Tools
3. Developing Safe Work Habits in Agricultural Mechanics
4. Developing Basic Carpentry Skills
5. Developing Arc Welding Skills
6. Developing Oxyacetylene Welding Skills
7. Surveying in Agriculture
8. Developing Basic Shop Skills

9. Constructing and Maintaining Buildings
10. Developing Electrical Wiring Skills
11. Adjusting and Maintaining Planting Equipment
12. Maintaining and Repairing Small Engines
13. Adjusting and Maintaining Combine Harvesting Equipment
14. Developing Concrete and Masonry Skills
15. Selecting and Using Electric Motors
16. Adjusting and Maintaining Spraying Equipment
17. Maintaining and Servicing Tractors

Unit I: Agricultural Business Management

Problem Areas:

1. Four Ways of Doing Business in Agriculture
2. Marketing Agricultural Crops
3. Marketing Livestock and Livestock Products
4. Understanding and Using Basic Economic Principles of Production
5. Managing Credit in Agriculture
6. Planning an Insurance Program
7. Using the Illinois Farm Record Book
8. Understanding Agricultural Taxes
9. Using Microcomputers in Agricultural Business Management
10. Understanding Basic Agricultural Law
11. Planning an Agricultural Production Business

APPENDIX B

METROPOLITAN CORE UNITS
AND PROBLEM AREAS

Unit A: Orientation to Agricultural Occupations

Problem Areas:

1. Introduction to the School Program
2. Introduction to Agriculture and Society
3. Careers in Urban Agriculture
4. Orientation to the Vocational Horticulture Course and SOE
5. Developing Effective Study Habits
6. Gaining Employment
7. Maintaining Employment

Unit B: Supervised Occupational Experience

Problem Areas:

1. Orientation to SOE
2. Planning My SOE Program
3. Keeping Records on a SOE Program
4. Keeping SOE Records Using the Floriculture Record Book
5. Evaluating Supervised Occupational Experience Programs and Analyzing Student Records

Unit C: Leadership in Horticulture/Agriculture

Problem Areas:

1. Understanding the National Junior Horticulture Association and FFA as Part of Vocational Horticulture/Agriculture
2. Duties and Responsibilities of Youth Club Officers and Members
3. Developing Basic Parliamentary Skills
4. Participating in Individual and Group Activities in Youth Organizations
5. Developing Leadership Skills
6. Developing Basic Public Speaking Skills
7. Utilizing Horticultural Organizations and Resources

Unit D: Horticultural/Agricultural Mechanics

Problem Areas:

1. Identifying, Fitting and Using Hand Tools
2. Using Selected Power Tools
3. Developing Safe Work Habits in Agricultural Mechanics
4. Developing Basic Carpentry Skills
5. Developing Concrete Skills
6. Managing Greenhouse Electrical Systems
7. Servicing Small Gas Engines
8. Glazing
9. Plumbing and Irrigation Systems
10. Repairing Greenhouse or Horticultural Equipment
11. Operating, Maintaining, and Servicing Lawn and Garden Equipment

Unit E: Plant Propagation

Problem Areas:

1. Care, Handling and Storing Herbaceous Seeds
2. Seeding in Containers
3. Propagating by Cuttings
4. Propagating by Layerage
5. Propagating by Division and Separation
6. Propagating Herbaceous Plants by Grafting
7. Propagating Softwood Cuttings
8. Propagating Woody Plants by Budding and Grafting
9. Propagating by Tissue Culture

Unit F: Plant Identification

Problem Areas:

1. Identifying and Classifying Plants
2. Identifying Different Parts and Types of Leaves
3. Identifying Different Parts and Types of Stems
4. Identifying Different Parts and Types of Fruits
5. Identifying Different Parts and Types of Flowers

6. Identifying Different Parts and Types of Roots
7. Identifying Turfgrasses and Turfgrass Weeds and Using Turfgrasses in the Landscape
8. Identifying Trees and Shrubs in the Landscape
9. Identifying Vines and Ground Covers in the Landscape
10. Identifying and Using Annual and Perennial Flowers in the Landscape
11. Identifying and Caring for Flowering and Foliage House Plants
12. Reviewing and Applying Plant Identification Skills

Unit G: Growing and Managing Horticultural Crops

Problem Areas:

1. Watering Plants
2. Pruning, Pinching and Disbudding Plants
3. Planting Plants
4. Identifying and Using Structures Used in the Production of Plants
5. Understanding and Controlling Temperature Around Plants
6. Understanding and Controlling Light Around Plants
7. Growing Vegetables
8. Growing Bedding Plants
9. Growing Greenhouse Flowering Crops from Seeds and Cuttings
10. Growing Container Nursery Crops
11. Growing Bulb Crops
12. Growing Small Fruits and Brambles
13. Growing Tree Fruits
14. Developing Crop Growing Schedules

Unit H: Identifying and Controlling Pests of Horticultural Plants

Problem Areas:

1. Pest Identification and Safe Use of Pesticides
2. Identifying and Controlling Landscape and Garden Pests

3. Handling Pesticides Safely and Passing Certification Tests

Unit I: Urban Animals

Problem Areas:

1. Care and Feeding of the Family Dog
2. Care and Feeding of the Family Cat
3. Care and Feeding of the Family Horse

Unit J: Soil Science and Conservation of Natural Resources

Problem Areas:

1. Pasteurizing and Preparing a Growing Media for the Greenhouse
2. Collecting Soil Samples from the Greenhouse, Garden, and Lawn and Applying Sample Test Results
3. Identifying Soil Amendments and Their Functions
4. Fertilizing Horticultural Crops
5. Understanding Soils
6. Selecting Soil Sites for Urban Use
7. Attracting Birds to Your Backyard
8. Growing Plants Hydroponically

Unit K: Agricultural Products

Problem Areas:

1. Identifying and Selecting Fresh Fruit and Vegetables
2. Identifying and Selecting Ornamental Horticultural Products
3. Selecting and Buying Horticultural Tools and Equipment

Unit L: Landscape Design Establishment and Maintenance

Problem Areas:

1. Designing and Drawing a Landscape Plan
2. Establishing and Maintaining a Turf Area
3. Constructing Patios and Walkways
4. Transplanting, Fertilizing, and Watering Trees and Shrubs
5. Pruning Evergreens
6. Surveying, Grading and Tiling

7. Constructing Fences and Retaining Walls
8. Interior Plantscaping
9. Pruning Deciduous Shrubs
10. Pruning Deciduous Shade Trees
11. Pruning Bonsai, Espalier, Topiary, Vines, and Roses
12. Using Mulches in the Landscape
13. Growing Plants in Containers

Unit M: Retail Floriculture

Problem Areas:

1. Handling and Preparing Cut Flowers
2. Ordering and Buying Cut Flowers
3. Making Table Arrangements, Corsages, Nosegays
4. Designing Silk and Dried Arrangements
5. Designing Wedding Arrangements
6. Designing Funeral Arrangements
7. Designing Holiday Arrangements
8. Designing Dish Gardens and Terrariums
9. Operating a Retail Floriculture Shop

Unit N: Horticulture Business Management

Problem Areas:

1. Understanding the Four Common Ways of Organizing a Business
2. Selling Horticultural Products
3. Marketing Horticultural Products
4. Utilizing Microcomputers in Horticulture Business Management

APPENDIX C

OTHER SUGGESTED UNITS AND PROBLEM AREAS FOR RURAL AND METROPOLITAN PROGRAMS

I. RURAL PROGRAMS

Unit: Agricultural Mechanics

Problem Areas:

1. Sketching and Reading Plans
2. Planning and Constructing Fences
3. Planning the Farm Wiring System
4. Maintaining the Wiring System
5. Preserving Wood and Metal
6. Selecting Fuels and Lubricants
7. Servicing the Diesel Fuel System
8. Applying Basic Hydraulics Principles
9. Adjusting, Operating, and Maintaining Tillage Equipment
10. Operating Engine Test Equipment
11. Troubleshooting Engines
12. Reconditioning and Repairing Equipment
13. Using Service Manuals
14. Examining the Fundamentals of Multicylinder Engines
15. Examining Power Transfer Systems
16. Overhauling Gasoline Engines
17. Reviewing Electrical Applications in Agricultural Equipment
18. Building Conservation Structures
19. Planning and Installing Irrigation and Drainage Systems

Unit: Livestock Science

Problem Areas:

1. Grading Livestock
2. Fitting and Showing Livestock
3. Managing the Beef Herd
4. Managing the Dairy Herd
5. Managing the Swine Herd
6. Managing the Sheep Flock

7. Managing the Poultry Flock
8. Managing Horses
9. Beekeeping
10. Marketing Livestock
11. Reviewing New Developments in Livestock Production

Unit: Crop Science

Problem Areas:

1. Determining How Plants Grow and Reproduce
2. Determining Nutrient Requirements for Farm Crops
3. Preparing a Seedbed
4. Cultivating Crops
5. Controlling Diseases of Farm Crops
6. Controlling Insects in Farm Crops
7. Selecting Crop Seed
8. Determining Equipment Costs and Labor Efficiency
9. Determining Appropriate Grain Handling Systems
10. Harvesting High Moisture Crops
11. Reviewing New Developments in Crop Production
12. Growing Hay
13. Producing Corn Silage
14. Producing Grass Silage
15. Producing Specialty Crops

Unit: Soil Science and Conservation of Natural Resources

Problem Areas:

1. Managing Soils
2. Making and Interpreting Tissue Tests
3. Determining Soil Capacity
4. Conserving Forest Resources
5. Determining How Trees Grow
6. Identifying Trees
7. Measuring and Marketing Timber

8. Managing the Forest
9. Protecting the Forest
10. Assessing the Economic Importance of Renewable Natural Resources
11. Determining Land Capability and Planning For Land Use
12. Grading Lumber
13. Growing and Marketing Christmas Trees
14. Using Maps and Aerial Photographs in Environmental Planning
15. Identifying Important Wildlife Species
16. Managing Ponds and Streams

Unit: Horticulture

Problem Areas:

1. Preparing a Landscape Plan
2. Selecting and Planting Landscape Materials
3. Caring for Planted Materials
4. Planning the Home Garden
5. Planting the Home Garden
6. Harvesting Garden Produce

Unit: Agricultural Business Management

Problem Areas:

1. Buying and Handling Agricultural Products
2. Advertising and Promoting the Business
3. Keeping and Using Agricultural Business Records
4. Providing for Safety in the Business
5. Examining Entrepreneurial Skills
6. Controlling Inventory
7. Determining the Agricultural Business Management Structure
8. Practicing Sales Techniques
9. Analyzing Business Opportunities
10. Selecting Sites for Agribusiness Ventures
11. Examining Personnel and Human Relations
12. Determining Business Costs and Profits
13. Using Business Forms

II. METROPOLITAN PROGRAMS

Unit: Growing and Managing Horticultural Crops

Problem Areas:

1. Transplanting Plants
2. Acquiring Plant Materials
3. Regulating Plant Growth
4. Scheduling Crops
5. Storing Greenhouse Crops
6. Selecting Seed and Crop Varieties
7. Establishing an Orchard
8. Harvesting Tree Fruits
9. Growing and Marketing Christmas Trees
10. Planning the Watering System

Unit: Identifying and Controlling Pests of Horticultural Plants

Problem Areas:

1. Examining Methods of Insect and Pest Control
2. Controlling Diseases in Horticultural Plants
3. Controlling Weeds in Horticultural Plants
4. Selecting Control Methods

Unit: Urban Animals

Problem Areas:

1. Recognizing and Controlling Animal Diseases and Pests
2. Grooming Animals
3. Keeping Records
4. Identifying Species of Urban Animals

Unit: Soil Science and Conservation of Natural Resources

Problem Areas:

1. Determining the Formation and Type of Local Soils
2. Determining Land Capability
3. Using Soil Surveys
4. Conserving Soil and Water Resources

Unit: Agricultural Mechanics

Problem Areas:

1. Constructing and Maintaining Plant Growing Structures
2. Constructing Planters and Benches
3. Painting and Preserving
4. Maintaining Watering Systems
5. Developing Basic Electrical Wiring Skills

Unit: Landscape Design Establishment and Maintenance

Problem Areas:

1. Becoming Acquainted With the Nursery Industry
2. Protecting Plants During the Winter
3. Handling Nursery Stock
4. Establishing and Maintaining Landscape Plantings
5. Selecting and Using Landscape Tools and Equipment
6. Renovating Lawns

Unit: Business Management

Problem Areas:

1. Maintaining Customer Relations
2. Buying and Handling Materials
3. Advertising and Promoting the Business
4. Keeping and Using Business Records
5. Providing for Safety in the Business

6. Examining Entrepreneurial Skills
7. Controlling Inventory
8. Analyzing Business Opportunities
9. Purchasing Products for Resale
10. Establishing Prices
11. Displaying Products
12. Determining the Business Management Structure
13. Practicing Sales Techniques
14. Selecting Sites for Business Ventures
15. Examining Personnel and Human Relations
16. Determining Costs and Profits
17. Using Business Forms

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